In the Claims:

1. A pre-crash assessment system, having a first target object in a near zone of a host object in motion, comprising:

a remote sensor coupled to the host object for detecting a first target object dynamic;

a status monitoring sensor coupled to the host object for detecting a host object dynamic;

a first safety device actuator, coupled to the host object, for activating a first safety device;

a first safety device activation specification defining a first threshold for said first safety device actuator; and

a safety device controller, coupled to the host object for generating a threshold criteria assessment based on said host object dynamic and said first target object dynamic, said controller estimating future positions of the host object and the first target object, said controller further estimating whether a potential for crash between the host object and the first target object is within said first threshold for said first safety device actuator, said safety device controller further controlling said first safety device actuator in response to said threshold criteria assessment.

2. The system of claim 1, further comprising multiple target objects in the near zone of the host object.

3. The system of claim 1, wherein said controller further comprises a tracking filter.

22

4.   The system of claim 1, wherein an airbag comprises said first safety device.

5.   The system of claim 1, wherein a motorized safety belt pre-tensioner comprises said first safety device.

6.   The system of claim 1, wherein a lidar sensor comprises said remote sensor.

7.   The system of claim 1, wherein a radar sensing system comprises said remote sensor.

8.   A method for pre-crash threat assessment for a host vehicle in motion, comprising:

sensing a first target vehicle in a near zone of the host vehicle;

tracking said first target vehicle;

estimating a first target vehicle dynamic;

calculating a future position of said first target vehicle from said current first target vehicle dynamic;

sensing the host vehicle in motion;

tracking a current host vehicle dynamic;

estimating a future host vehicle dynamic based on said current host vehicle dynamic;

calculating a future position of the host vehicle from said current host vehicle dynamic;

calculating a potential for collision between the host vehicle and said first target vehicle; and

determining whether said potential for collision of the host vehicle and said first target vehicle is within a pre-determined safety threshold.

23

9. The method of claim 8, wherein said step of sensing further comprises the step of sensing a plurality of target vehicles in said near zone of the host vehicle.

5 10. The method of claim 8, wherein said step of calculating a future position of said first target vehicle further comprises the step of filtering future positions of said first target vehicle.

11. The method of claim 8 wherein said step
10 of estimating further comprises the step of estimating acceleration of said first target vehicle.

12. The method of claim 8, wherein said step of determining further comprises the step of determining whether said potential for collision of the host vehicle
15 and said first target vehicle is within a second safety device activation threshold.

13. A pre-crash assessment system, having a first target vehicle in a near zone of a host vehicle, comprising:
20 a high frequency remote sensor, coupled to the host vehicle, for detecting a first target vehicle dynamic;

a status monitoring sensor coupled to the host vehicle for detecting a host vehicle dynamic;
25 a first safety device actuator, coupled to the host vehicle for activating a first safety device;

a first safety device activation specification defining a first threshold for said first safety device actuator;

24

a second safety device actuator, coupled to the host vehicle, for activating a second safety device; and

5   a second safety device activation specification defining a second threshold for said second safety device actuator;

a safety device controller, coupled to the host vehicle for generating a tracking signal based on said first target vehicle dynamic and said host vehicle

10   dynamic, said controller estimating future positions of the host vehicle and the first target vehicle, said controller further estimating whether a potential for crash between the host vehicle and the first target vehicle is within said first threshold for said first

15   safety device actuator, thereby defining a first threshold assessment, and said controller further estimating whether said potential for crash between the host vehicle and the first target vehicle is within said second threshold for said second safety device actuator,

20   thereby defining a second threshold assessment, said safety device controller further controlling said first safety device actuator in response to said first threshold assessment and said second safety device actuator in response to said second threshold

25   assessment.

14. The system of claim 13, further comprising multiple target objects in the near zone of the host vehicle.

15. The system of claim 13, wherein a

30   controller further comprises said tracking filter.

25

16. The system of claim 13, wherein an airbag comprises said first safety device.

17. The system of claim 13, wherein a motorized safety belt pre-tensioner comprises said second safety device.

18. The system of claim 13, wherein a lidar sensor comprises said high frequency remote sensor.

19. The system of claim 13, wherein a radar sensing system comprises said high frequency remote sensor.